CONTRIBUTION TO THE DETERMINATION OF THE THERMAL AIR-SEA BUDGET

V. Mariette, (Actimar), C. Ratsivalaka, V. Verbeque.
Contact : mariette@actimar.fr

ABSTRACT

Since few years, operational oceanography is growing fast. To predict the evolution of upper layers thermal structure, the “Centre Militaire d’Océanographie” (CMO), uses a 1D thermocline model with a local turbulent closure scheme. In present time, at the air-sea interface, the input of the system is the thermal budget evaluated every day from Arpege model. The forecasting performance strongly depends on the air-sea exchanges terms accuracy. To evaluate that dependence, we use results from PRECOCE experiment, conducted by CMO to validate the forecasting model in N.E. Atlantic. Observations are provided from Marisonde drifting buoys from September 1997 to July 1998. In June 1998, in situ measurements of solar and longwave irradiances were carried on the French Navy oceanographic and hydrographic ship, “D’ENDTRECASTEAUX”, DTX. In this work, to evaluate the thermal air-sea budget accuracy, we present comparisons between in situ measurements, Arpege calculations and hourly satellite estimates from the “Centre de Météorologie Spatiale de Lannion” (CMS)(Brisson and al, 1996). We also test a bulk formulae method for the analysed input. Then, we compare the impact of the different thermal air-sea budgets on the numerical simulations.

Bibliography:

- Brisson A., Le Borgne P., Marsouin A. : Retrieval of air-sea interface parameters from Meteosat data, *Proceeding of the 1996 Meteorological satellite data user’s conference, Vienna, Austria, 16-20 September 1996*
- Fairall C.W, Bradley E.F., Rogers D.P., Edson J.B., and Young G.S. : Bulk parameterization of air-sea fluxes for Tropical Ocean Global Atmosphere Coupled-Ocean Atmosphere response experiment, *J. Geophys. Res., 101, 3747-3764, 1996*.
- Gaspar P., Gregoris Y. and Lefevre J.M. : A simple eddy kinetic energy model for simulations of the oceanic vertical mixing : Tests at station Papa and long-term upper ocean study site, *1990. J.G.R., vol. 95, N° C9, pp 16.179, 16.193*.